International Geophysical Calendar 1990

(See other side for information on use of this Calendar)

	S	M	T	W	T	F	S
		1	2	3	4	5	6
	7	8	9	10	11	12	13
JANUARY	14	15	(16)	**17**	(18)	19	20
	21	22	23	24 *+	25 *+	26	27
	28	29	30	31	1	2	3
	4	5	6	7	8	9	10
FEBRUARY	11	12 +	13 +	14 +	15 +	16 +	17 +
	18	19	(20)	**21** *+	(22) *+	23 +	24
	25	26	27	28	1	2	3
	4	5	6	7	8	9	10
MARCH	11	12	13	14	15	16	17
	18	19	(20) +	**21** +	(22)	23	24
	25	26	27 *	28 *	29	30	31
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
APRIL	15	16	17	18	19	20	21
	22	23	(24)	**25** *	(26) *	27	28
	29	30	1	2	3	4	5
	6	7	8	9	10	11	12
MAY	13	14	15	16	17	18	19
	20	21 +	(22) *+	**23** *	(24)	25	26
	27	28	29	30	31	1	2
	3	4	5	6	7	8	9
JUNE	10	11	12	13	14	15	16
	17	18	(19)	**20** *	(21) *	22	23
	24	25 +	26 +	27 +	28 +	29 +	30
	S	M	T	W	T	F	S

	S	M	T	W	T	F	S	
	1	2	3	4	5	6	7	
	8	9	10	11	12	13	14	JULY
	15	16	17	18	19	20	21	
	22	23	(24) *	**25** *	(26)	27	28	
	29	30	31	1	2	3	4	
	5	6	7	8	9	10	11	AUGUST
	12	13	14	15	16	17	18	
	19	20	(21) *	**22** *	(23)	24	25	
	26	27	28	29	30	31	1	
	2	3	4	5	6	7	8	
	9	10	11	12	13	14	15	SEPTEMBER
	16	17	(18)	**19** *	(20) *+	21 +	22	
	23	24	25	26	27	28	29	
	30	1	2	3	4	5	6	
	7	8	9	10	11	12	13	OCTOBER
	14	15	(16) *	**17** *	(18)	19	20	
	21	22	23	24	25	26	27	
	28	29	30	31	1	2	3	
	4	5	6	7	8	9	10	NOVEMBER
	11	12	(13) *+	**14** *+	(15) +	16	17	
	18	19	20	21	22	23	24	
	25	26	27	28	29	30	1	
	2	3	4	5	6	7	8	
	9	10	11	12	13	14	15	DECEMBER
	16	17 +	(18) *+	**19** *+	(20)	21	22	
	23	24	25	26	27	28	29	
	30	31	1	2	3	4	5	1991
	6	7	8	9	10	11 +	12 +	JANUARY
	13	14	(15) *	**16** *	(17)	18	19	
	20	21	22	23	24	25	26	
	27	28	29	30	31			
	S	M	T	W	T	F	S	

(16) Regular World Day (RWD)

(21) Priority Regular World Day (PRWD)

17 Quarterly World Day (QWD) also a PRWD and RWD

3 Regular Geophysical Day (RGD)

15 16 World Geophysical Interval (WGI)

28+ Incoherent Scatter Coordinated Observation Day

26 Day of Solar Eclipse

25 26 Airglow and Aurora Period

24* Dark Moon Geophysical Day (DMGD)

NOTES:

1. Days with unusual meteor shower activity are: Northern Hemisphere Jan 3,4; Apr 22-23; May 4-5; Jun 8-12; Jul 28-29; Aug 10-14; Oct 21-22; Nov 2-3, 17-18; Dec 12-16, 22-23, 1990; Jan 3-4, 1991. Southern Hemisphere May 4-5; Jun 8-12; Jul 26-30; Oct 21-22; Nov 2-3, 17-18; Dec 5-7, 12-16, 1990.

2. Solar Interplanetary Variability (SIV) Observing Program 1988 - 1989 concludes with in-depth data analysis in 1990.

3. Day intervals that IMP 8 satellite is in the solar wind (begin and end days are generally partial days): 29 Dec 1989-5 Jan 1990; 10-17 Jan; 23-30 Jan; 4-11 Feb; 17-24 Feb; 2-9 Mar; 15-22 Mar; 27 Mar-3 Apr; 9-16 Apr; 22-28 Apr; 4-11 May; 17-23 May; 30 May-5 Jun; 11-18 Jun; 24 Jun-1 Jul; 7-13 Jul; 19-26 Jul; 1-8 Aug; 13-20 Aug; 25 Aug-2 Sep; 7-15 Sep; 19-27 Sep; 2-10 Oct; 15-23 Oct; 28 Oct-4 Nov; 9-17 Nov; 22-29 Nov; 4-11 Dec; 16-24 Dec; 29 Dec-5 Jan 1991.

   There will not be total IMP 8 data monitoring coverage during these intervals. (Information kindly provided by the WDC-A for Rockets and Satellites, NASA GSFC, Greenbelt, MD 20771 U.S.A.).

4. + Incoherent Scatter programs start at 1600 UT on the first day of the intervals indicated, and end at 1600 UT on the last day of the intervals.

5. Incoherent Scatter world days: 24-25 Jan 1990; 12-17 Feb LTCS/WAGS; 21-23 Feb GISMOS; 20-21 Mar; 21-22 May; 25-29 Jun GITCAD/SUNDIAL/WAGS; 20-21 Sep; 13-15 Nov DELITE; 17-19 Dec DELITE; 11-12 Jan 1991.

where DELITE= Dynamics Explorer - Lower Ionosphere-Thermosphere Emissions;
GISMOS= Global Ionospheric Simultaneous Measurements of Substorms;
GITCAD= Global Ionosphere-Thermosphere Coupling and Dynamics;
LTCS= Lower Thermosphere Coupling Study;
SUNDIAL= Coordinated study of the Ionosphere/magnetosphere;
WAGS= Worldwide Acoustics Gravity Wave Study.

OPERATIONAL EDITION, September 1989

EXPLANATIONS

This Calendar continues the series begun for the IGY years 1957-58, and is issued annually to recommend dates for solar and geophysical observations which cannot be carried out continuously. Thus, the amount of observational data in existence tends to be larger on Calendar days. The recommendations on data reduction and especially the flow of data to **World Data Centers (WDCs)** in many instances emphasize Calendar days. The Calendar is prepared by the **International Ursigram and World Days Service (IUWDS)** with the advice of spokesmen for the various scientific disciplines.

The **Solar Eclipses** are:

a.) *26 January 1990* (annular) beginning in Antarctica and ending in the South Atlantic. Partial phases visible on the South Island of New Zealand and much of South America.

b.) *22 July 1990* (total) begins in Finalnd, then along northern coasts of Europe and Asia. Totality path 130 miles wide at maximum, duration 2 min 33 s; Sun at about 40 degrees altitude. Totality crosses Alaska's Aleutian Islands. Partial phases in northeastern Europe, northwestern North America, northern Asia, and Hawaiian Islands.

Meteor Showers (selected by P.M. Millman, Ottawa) include important visual showers and also unusual showers observable mainly by radio and radar techniques. The dates for Northern Hemisphere meteor showers are: Jan 3, 4; Apr 22-23; May 4-5; Jun 8-12; Jul 28-29; Aug 10-14; Oct 21-22; Nov 2-3, 17-18; Dec 12-16, 22-23, 1990; and Jan 3-4, 1991. The dates for Southern Hemisphere meteor showers are: May 4-5; Jun 8-12; Jul 26-30; Oct 21-22; Nov 2-3, 17-18; and Dec 5-7, 12-16, 1990.

Definitions:

Time	= Universal Time **(UT)**;
Regular Geophysical Days **(RGD)**	= each Wednesday;
Regular World Days **(RWD)**	= Tuesday, Wednesday and Thursday near the middle of the month (see calendar).
Priority Regular World Days **(PRWD)**	= the Wednesday **RWD**;
Quarterly World Days **(QWD)**	= **PRWD** in the **WGI**;
World Geophysical Intervals **(WGI)**	= 14 consecutive days each season (see calendar);
ALERTS	= occurrence of unusual solar or geophysical conditions, broadcast once daily soon after 0400 UT;
STRATWARM	= stratospheric warmings;
Retrospective World Intervals **(RWI)**	= intervals selected by MONSEE for study.

For more detailed explanations of the definitions, please see one of the following or contact H. Coffey (address below): *Solar-Geophysical Data*, November issue; *URSI Information Bulletin; COSPAR Information Bulletin; IAGA News; IUGG Chronicle; WMO Bulletin; IAU Information Bulletin; Solar-Terrestrial EnvironmentalResearch in Japan; Journal of the Radio Research Laboratories (Japan); Geomagnetism and Aeronomy (USSR); Journal of Atmospheric and Terrestrial Physics (UK); EOS Magazine (AGU/USA).*

Priority recommended programs for measurements not made continuously (in addition to unusual **ALERT** periods):

Aurora and Airglow — Observation periods are New Moon periods, especially the 7 day intervals on the calendar;

Atmospheric Electricity — Observation periods are the **RGD** each Wednesday, beginning on 3 January 1990 at 0000 UT, 10 January at 0600 UT, 17 January at 1200 UT, 24 January at 1800 UT, etc. Minimum program is **PRWDs.**

Geomagnetic Phenomena — At minimum, need observation periods and data reduction on **RWDs** and during **MAGSTORM Alerts.**

Ionospheric Phenomena — Quarter-hourly ionograms; more frequently on **RWDs,** particularly at high latitude sites; f-plots on **RWDs;** hourly ionograms to **WDCs** on **QWDs;** continuous observations for solar eclipse in the eclipse zone. See **Airglow and Aurora.**

Incoherent Scatter — Observations on Incoherent Scatter Coordinated Days; also intensive series on **WGIs** or Airglow and Aurora periods. **Special programs:** Dr. V. Wickwar, Utah State Univ., Center for Atmospheric and Space Sciences, Logan, UT 84322-4405 U.S.A., URSI Working Group G.5 (801)750-3641.

Ionospheric Drifts — During weeks with **RWDs.**

Traveling Ionosphere Disturbances — special periods, probably **PRWD** or **RWDs.**

Ionospheric Absorption — Half-hourly on **RWDs**; continuous on solar eclipse days for stations in eclipse zone and conjugate area. Daily measurements during Absorption Winter Anomaly at temperate latitude stations (Oct-Mar Northern Hemisphere; Apr-Sep Southern Hemisphere).

Backscatter and Forward Scatter — RWDs at least.

Mesospheric D region electron densities — RGD a round noon.

ELF Noise Measurements of earth-ionosphere cavity resonances — WGIs.

All Programs — Appropriate intensive observations during unusual meteor activity.

Meteorology — Especially on **RGDs.** On **WGIs** and **STRATWARM** Alert Intervals, please monitor on Mondays and Fridays as well as Wednesdays.

Solar Phenomena — Solar eclipse days, **RWDs,** and during **PROTON/FLARE ALERTS.**

Solar Interplanetary Variability (SIV) — observations of transition phenomena solar minimum to solar maximum (1988-1989), with in-depth analysis in 1990. Contact Dr. E.J. Smith, JPL, MS169/506, 4800 Oak Grove Dr., Pasadena, CA 91109 U.S.A.

Transient Interplanetary Phenomena (TIP) – 1990-95 observations and analyses of solar-generated phenomena propagating through heliosphere. Includes IPS observations of remote radio galaxies and telemetry signals to/from interplanetary spacecraft. Also coordination of spacecraft IMP8, ICE, Giotto, Sakigake, Voyager 1/2, Pioneer 10/11, Ulysses, Relict, Wind and SOHO. Contact Dr. M. Dryer, NOAA R/E/SE, 325 Broadway, Boulder, CO 80303 USA.

Space Research, Interplanetary Phenomena, Cosmic Rays, Aeronomy — QWDs, RWD, and **Airglow and Aurora** periods.

The International Ursigram and World Days Service (IUWDS) is a permanent scientific service of the International Union of Radio Science **(URSI),** with the participation of the International Astronomical Union and the International Union of Geodesy and Geophysics. IUWDS adheres to the Federation of Astronomical and Geophysical Data Analysis Services (FAGS) of the International Council of Scientific Unions (ICSU). The IUWDS coordinates the international aspects of the world days program and rapid data interchange.

This Calendar for 1990 has been drawn up by H.E. Coffey, of the IUWDS Steering Committee, in association with spokesmen for the various scientific disciplines in SCOSTEP, IAGA and URSI. Similar Calendars are issued annually beginning with the IGY, 1957-58, and are published in various widely available scientific publications.

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Additional copies are available upon request to IUWDS Chairman, Dr. R. Thompson, IPS Radio and Space Services, Department of Administrative Services, P.O. Box 1548, Chatswood, NSW 2057, Australia, or IUWDS Secretary for World Days, Miss H.E. Coffey, WDC-A for Solar-Terrestrial Physics, NOAA E/GC2, 325 Broadway, Boulder, Colorado 80303, USA.